

LTC 5231/90 & LTC 5234/90



Security Systems

EN | Instruction Manual
Video Distribution
Amplifiers
(Indoor Use Only)

BOSCH

Important Safeguards

1. **Read, Follow, and Retain Instructions** - All safety and operating instructions should be read and followed before operating the unit. Retain instructions for future reference.
2. **Heed Warnings** - Adhere to all warnings on the unit and in the operating instructions.
3. **Attachments** - Attachments not recommended by the product manufacturer should not be used, as they may cause hazards.
4. **Installation Cautions** - Do not place this unit on an unstable stand, tripod, bracket, or mount. The unit may fall, causing serious injury to a person and serious damage to the unit. Use only manufacturer-recommended accessories, or those sold with the product. Mount the unit per the manufacturer's instructions. Appliance and cart combination should be moved with care. Quick stops, excessive force, or uneven surfaces may cause the appliance and cart combination to overturn.
5. **Cleaning** - Unplug the unit from the outlet before cleaning. Follow any instructions provided with the unit. Generally, using a damp cloth for cleaning is sufficient. Do not use liquid cleaners or aerosol cleaners.
6. **Servicing** - Do not attempt to service this unit yourself. Opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
7. **Damage Requiring Service** - Unplug the unit from the main AC power source and refer servicing to qualified service personnel under the following conditions:
 - When the power supply cord or plug is damaged.
 - If liquid has been spilled or an object has fallen into the unit.
 - If the unit has been exposed to water and/or inclement weather (rain, snow, etc.).
 - If the unit does not operate normally, when following the operating instructions. Adjust only those controls specified in the operating instructions. Improper adjustment of other controls may result in damage, and require extensive work by a qualified technician to restore the unit to normal operation.
 - If the unit has been dropped or the cabinet damaged.
 - If the unit exhibits a distinct change in performance, this indicates that service is needed.
8. **Replacement Parts** - When replacement parts are required, the service technician should use replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electrical shock or other hazards.
9. **Safety Check** - Upon completion of servicing or repairs to the unit, ask the service technician to perform safety checks to ensure proper operating condition.
10. **Power Sources** - Operate the unit only from the type of power source indicated on the label. If unsure of the type of power supply to use, contact your dealer or local power company.
 - For units intended to operate from battery power, refer to the operating instructions.
 - For units intended to operate **with External Power Supplies**, use only the recommended approved power supplies.
 - For units intended to operate with a limited power source, this power source must comply with EN60950. Substitutions may damage the unit or cause fire or shock.
 - For units intended to operate at 24VAC, normal input voltage is **24VAC**. Voltage applied to the unit's power input should not exceed 30VAC. User-supplied wiring, from the 24VAC supply to unit, must be in compliance with electrical codes (Class 2 power levels). Do not ground the 24VAC supply at the terminals or at the unit's power supply terminals.
11. **Coax Grounding** - If an outside cable system is connected to the unit, ensure that the cable system is grounded. U.S.A. models only - Section 810 of the National Electrical Code, ANSI/NFPA No.70, provides information regarding proper grounding of the mount and supporting structure, grounding of the coax to a discharge unit, size of grounding conductors, location of discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.
12. **Grounding** - This unit is equipped with a 3-wire grounding plug (a plug with a third pin, for grounding). This safety feature allows the plug to fit into a grounding power outlet only. If unable to insert the plug into the outlet, contact an electrician to arrange replacement of the obsolete outlet. Do not defeat the safety purpose of the grounding plug.
 - Outdoor equipment should only be connected to the unit's inputs after this unit has had its grounding plug connected to a grounded outlet or its ground terminal properly connected to a ground source.
 - The unit's input connectors must be disconnected from outdoor equipment before disconnecting the grounding plug or grounding terminal.
 - Proper safety precautions such as grounding should be followed for any outdoor device connected to this unit.
13. **Lightning** - For added protection during a lightning storm, or when this unit is left unattended and unused for long periods of time, unplug the unit from the wall outlet and disconnect the cable system. This will prevent damage to the unit due to lightning and power line surges.

For Indoor Product

- Water and Moisture** - Do not use this unit near water - for example, in a wet basement, in an unprotected outdoor installation or in any area classified as a wet location.
- Object and Liquid Entry** - Never push objects of any kind into this unit through openings, as they may touch dangerous voltage points or short out parts that could result in a fire or electrical shock. Never spill liquid of any kind on the unit.
- Power Cord and Power Cord Protection** - For units intended to operate with 230VAC, 50Hz, the input and output power cord must comply with the latest versions of IEC Publication 227 or IEC Publication 245.
Power supply cords should be routed so they are not likely to be walked on or pinched. Pay particular attention to location of cords and plugs, convenience receptacles, and the point of exit from the appliance.
- Overloading** - Do not overload outlets and extension cords; this can result in a risk of fire or electrical shock.

For Outdoor Product

Power Lines - An outdoor system should not be located in the vicinity of overhead power lines, electric lights or power circuits, or where it may contact such power lines or circuits. When installing an outdoor system, extreme care should be taken to keep from touching power lines or circuits, as this contact might be fatal. U.S.A. models only - refer to the National Electrical Code Article 820 regarding installation of CATV systems.

For Rack-mount Product

- Ventilation** - This unit should not be placed in a built-in installation or rack, unless proper ventilation is provided, or the manufacturer's instructions have been adhered to. The equipment must not exceed its maximum operating temperature requirements.
- Mechanical Loading** - Mounting of the equipment in a rack shall be such that a hazardous condition is not achieved due to uneven mechanical loading.

FCC & ICES INFORMATION

(U.S.A. and Canadian Models Only)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules and ICES-003 of Industry Canada. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer, or an experienced radio/TV technician for help.

Intentional or unintentional changes or modifications, not expressly approved by the party responsible for compliance, shall not be made. Any such changes or modifications could void the user's authority to operate the equipment. The user may find the following booklet, prepared by the Federal Communications Commission, helpful: [How to Identify and Resolve Radio-TV Interference Problems](#). This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC SENSITIVE
DEVICES

WARNING:

Electrostatic-sensitive device. Use proper CMOS/MOSFET handling precautions to avoid electrostatic discharge.

NOTE: Grounded wrist straps must be worn and proper ESD safety precautions observed when handling the electrostatic-sensitive printed circuit boards.



This unit is to only be connected to equipment compliant to the Safety Standard for Information Technology Equipment (I.T.E.).

Safety Precautions



CAUTION

RISK OF ELECTRIC SHOCK. DO NOT OPEN!



CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



This symbol indicates the presence of uninsulated “dangerous voltage” within the product’s enclosure that can cause an electric shock.



This symbol indicates the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



Installation should be performed by qualified service personnel only in accordance with the National Electrical Code or applicable local codes.



Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all units.

Sécurité



ATTENTION

RISQUE D'ÉLECTROCUTION. NE PAS OUVRIR !



ATTENTION : POUR ÉVITER TOUT RISQUE D'ÉLECTROCUTION, N'ESSAYEZ PAS DE RETIRER LE CAPOT (OU LE PANNEAU ARRIÈRE). CET APPAREIL NE CONTIENT AUCUN COMPOSANT SUSCEPTIBLE D'ÊTRE RÉPARÉ PAR L'UTILISATEUR. CONFIEZ LA RÉPARATION DE L'APPAREIL À DU PERSONNEL QUALIFIÉ.



Ce symbole signale que le produit renferme une « tension potentiellement dangereuse » non isolée susceptible de provoquer une électrocution.



Ce symbole invite l'utilisateur à consulter les instructions d'utilisation et d'entretien (dépannage) reprises dans la documentation qui accompagne l'appareil.



Attention : l'installation doit exclusivement être réalisée par du personnel qualifié, conformément au code national d'électricité américain (NEC) ou au code d'électricité local en vigueur.



Coupeure de l'alimentation. Qu'ils soient pourvus ou non d'un commutateur ON/OFF, tous les appareils reçoivent de l'énergie une fois le cordon branché sur la source d'alimentation. Toutefois, l'appareil ne fonctionne réellement que lorsque le commutateur est réglé sur ON. Le débranchement du cordon d'alimentation permet de couper l'alimentation des appareils.

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1.0 UNPACKING

This equipment should be unpacked and handled with care. If an item appears to have been damaged in shipment, notify the shipper.

Verify that all parts shown in the Parts List have been included. If any items are missing, notify your Bosch Security Systems Sales or Customer Service Representative.

The original packing carton is the safest container in which to transport the unit. Save it for possible future use.

1.1 Parts List

Qty	Item
1	Unit (Verify Model Number)
2	AC Power Cords (one for 120 VAC, and one for 220 - 240 VAC)
1	9-Pin Cable Assembly
1	This Installation Manual

2.0 SERVICE

If the unit needs repair, contact the nearest Bosch Security Systems Service Center for authorization to return and shipping instructions.

Service Centers

USA

Phone: 800-366-2283 or 717-735-6638

Fax: 800-366-1329 or 717-735-6639

CCTV Spare Parts

Phone: 800-894-5215 or 408-956-3853 or 3854

Fax: 408-957-3198

E-mail: BoschCCTVparts@ca.slr.com

Canada

Phone: 514-738-2434

Europe, Middle East & Asia Pacific Region

Phone: 32-1-440-0711

For additional information, see

www.boschsecurity.com.

3.0 DESCRIPTION

The LTC 5231/90 and LTC 5234/90 are video distribution amplifiers that provide multiple video outputs identical to the video input signal. Their ample bandwidth easily supports today's high-resolution video signals. A video-loss-detection feature is available for interfacing to external monitoring equipment.

The LTC 5231/90 and LTC 5234/90 also support Bilinx technology, allowing bidirectional communication through the video cable to access and control Bilinx-enabled devices such as AutoDome and Dinion cameras. A maximum of two (2) different types of Bilinx controller models can communicate to a common Bilinx-capable camera. Check with Bosch Security Systems Sales Representative regarding future product capabilities.

The LTC 5231/90 is a single-channel video distribution amplifier with four (4) video outputs for distribution to other video devices. A front panel LED indicates the presence of video.

The LTC 5234/90 is a 4-channel video distribution amplifier. It has four (4) independent distribution amplifiers, each with one input and three outputs. Front panel LEDs for each distribution amplifier channel indicates the presence of video.

These are indoor products and supplied as desktop units. Rack-mount kits are available from Bosch Security Systems for mounting in a standard EIA 19-inch rack.

4.0 INSTALLATION

4.1 Power

LTC 5231/90 and LTC 5234/90 models operate at 120/230 VAC, 50/60 Hz power. The model number is shown on the label located on the bottom of the unit. These units are supplied with grounded power cords; grounding must not be defeated.

4.2 Mounting

These amplifiers are supplied as desktop units. For rack mounting, the LTC 9101/00 Rack-mount Kit is available.

4.3 LTC 5231/90 Video Inputs and Outputs

In a simple application, the output from a single video source such as a camera, switcher, or DVR/VCR is connected to the signal INPUT connector on the back panel of the distribution amplifier. The video input has a fixed 75Ω termination.

The LTC 5231/90 has four (4) OUTPUT connectors, allowing up to four video output connections at a time. Devices connected to the outputs must be set for 75Ω termination. If multiple pieces of equipment are being looped from a single video OUTPUT, the last piece of equipment must have a 75Ω termination. See *TYPICAL INSTALLATION*.

4.4 LTC 5231/90 Video Loss Outputs

The LTC 5231/90 Distribution Amplifier has a video loss output, which is a set of relay contacts that automatically close when there is a loss of video signal. The VIDEO LOSS OUTPUT connections are made through the 9-pin connector on the back panel of the unit. The contact rating is 1 ampere at a maximum of 40 volts AC or DC. A 9-pin cable is supplied with the unit that mates to the connector, for video loss output connections. See *Figure 1* for pin connections.

Pin Function

- 1 Video Loss Relay 1
- 2 NC
- 3 NC
- 4 Video Loss Relay 1
- 5 NC
- 6 NC
- 7 NC
- 8 NC
- 9 NC

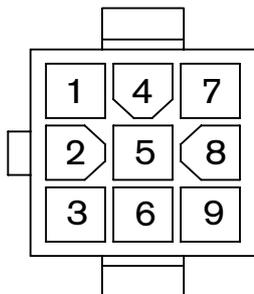


Figure 1: Video Loss Output Relay Connections LTC 5231/90

4.5 LTC 5234/90 Video Inputs and Outputs

In a simple application, the output from a single video source such as a camera, switcher, or DVR/VCR is connected to one of four signal INPUT connectors on the back panel of the distribution amplifier. The four inputs have fixed 75Ω terminations.

Each signal INPUT has three (3) OUTPUT connectors, allowing up to 12 video output connections at a time. Devices connected to the outputs must be set for 75Ω termination. If multiple pieces of equipment are being looped from a single video OUTPUT, the last piece of equipment must have a 75Ω termination. See *TYPICAL INSTALLATION*.

4.6 LTC 5234/90 Video Loss Outputs

The LTC 5234/90 Video Distribution Amplifier has four (4) video loss outputs, which are sets of relay contacts that automatically close when there is a loss of video signal. The video loss output connections are made through the 9-pin connector on the back panel of the unit. The contact rating is 1 ampere at a maximum of 40 volts AC or DC. A 9-pin cable is supplied with the unit that mates to the connector, for video loss output connections. See *Figure 2* for pin connections.

Pin Function

- 1 Video Loss Relay 1
- 2 Video Loss Relay 2
- 3 Video Loss Relay 2
- 4 Video Loss Relay 1
- 5 NC
- 6 Video Loss Relay 3
- 7 Video Loss Relay 4
- 8 Video Loss Relay 4
- 9 Video Loss Relay 3

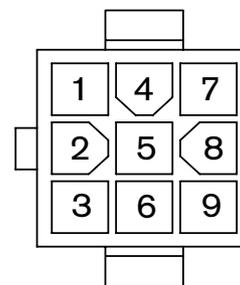


Figure 2: Video Loss Output Relay Connections LTC 5234/90

5.0 OPERATION

These units require no operational adjustments. The power ON indicator illuminates when power is applied to the unit, and the VIDEO indicators illuminate when video is supplied to the inputs.

6.0 TYPICAL INSTALLATION

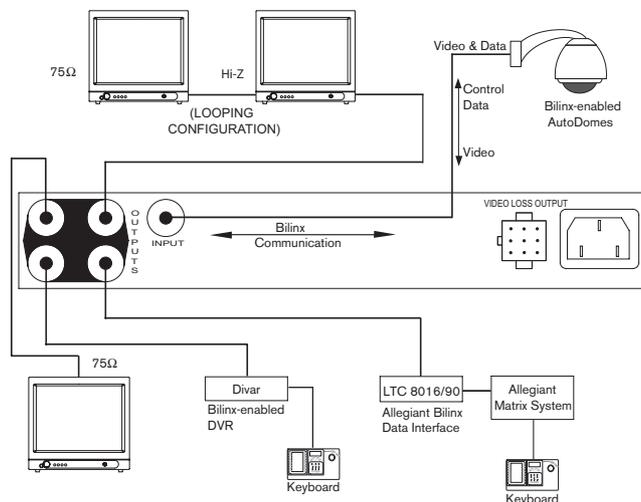


Figure 3: LTC 5231/90 Typical Configuration with Bilinx Communication

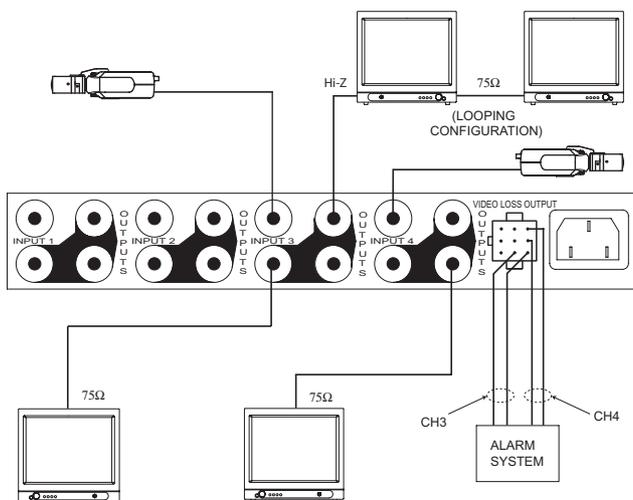


Figure 4: LTC 5234/90 Typical Configuration

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